1.0 INTRODUCTION

1.1 PURPOSE OF THE MULTI-SPECIES CONSERVATION STRATEGY

This Multi-Species Conservation Strategy (MSCS) for the CALFED Bay-Delta Program (CALFED) is an approach that entities implementing CALFED actions may use to fulfill the requirements of the federal Endangered Species Act (FESA), California Endangered Species Act (CESA), and Natural Community Conservation Planning Act (NCCPA). Specifically, the MSCS:

- analyzes CALFED's effects on 244 species and 20 communities for FESA, CESA, and NCCPA purposes;
- identifies species goals ("recovery", "contribute to recovery", or "maintain") for each of the 244 evaluated species, as well as conservation measures to achieve the goals;
- identifies goals for each of the 20 Natural Community Conservation Plan (NCCP) communities comprising 18 habitat types and two fish groups, as well as conservation measures to achieve the goals; and
- provides for the preparation of Action Specific Implementation Plans (ASIPs), which strengthen and simplify CALFED compliance with FESA, CESA, and NCCPA.

The MSCS contains two types of conservation measures:

- measures to avoid, minimize, and compensate for adverse effects to NCCP communities and evaluated species caused by individual CALFED actions; and
- measures to enhance NCCP communities and evaluated species that are not directly linked to CALFED's adverse effects.

Chapter 4, "Effects of CALFED Actions and Conservation Measures", summarizes the MSCS conservation measures; the attachments to this report and the MSCS technical reports describe them in greater detail.

The MSCS features a two-tiered approach to FESA, CESA, and NCCPA compliance that corresponds to CALFED's two-tiered approach to compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The MSCS provides a program-level evaluation of CALFED under FESA and NCCPA, just as the Programmatic Environmental Impact Statement/Environmental Impact Report (Programmatic EIS/EIR) provides a program-level evaluation under NEPA and CEQA. ASIPs are intended to complement the second-tier, project-level environmental review of CALFED actions that is anticipated in the Programmatic EIS/EIR.

Because it is a comprehensive regulatory compliance strategy and is integrated with the Programmatic EIS/EIR, the MSCS helps assure that CALFED can complete actions in accordance with FESA, CESA, and NCCPA, and that the compliance process will be systematic, efficient, and predictable. The MSCS will not give CALFED general authority to take endangered or threatened species. However, the MSCS's compliance process enables CALFED implementing entities to obtain authorizations under FESA and NCCPA that allow incidental take of endangered or threatened federally covered and State-covered species caused by specific CALFED actions. Chapter 6, "Compliance with the Federal and California Endangered Species Acts and Natural Community Conservation Planning Act", describes the MSCS's compliance process.

1.2 COMPLIANCE WITH THE FEDERAL ENDANGERED SPECIES ACT

Federal agencies may achieve FESA compliance under Section 7 of the act. Section 7 states that any federal agency that funds, authorizes, or carries out an action must consult with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS). The goal of this consultation is to ensure that the action is not likely to jeopardize the continued existence of any endangered or threatened species, or to result in the destruction or adverse modification of habitat critical to such species. If USFWS or NMFS determines that an agency action is likely to adversely affect a listed species or critical habitat, the agency taking the action must initiate formal consultation.

Formal consultation begins when the federal agency provides USFWS or NMFS a written biological assessment of the action. USFWS and/or NMFS review the biological assessment and other relevant information, then do the following:

- provide a written biological opinion that details how the action will affect any endangered species, threatened species, or critical habitat;
- suggest, if necessary, reasonable and prudent alternatives to the action that will avoid jeopardizing the continued existence of such species; and
- suggest, if necessary, reasonable and prudent measures to the action to minimize the effects of the incidental taking.

If the action will cause incidental take of an endangered or threatened species, USFWS and/or NMFS provide a statement of the level of take allowable. If the federal agency or other entity carrying out the action implements the specified measures and does not exceed the level of take stated in the biological opinion, FESA does not prohibit the incidental take caused by the action.

The MSCS serves as the biological assessment for CALFED and will initiate a programmatic consultation under Section 7. USFWS and NMFS will prepare programmatic biological opinions for CALFED based on the MSCS and other relevant information. As CALFED actions or groups of actions are identified and defined, ASIPs can be prepared that use information and analyses in the

MSCS and the programmatic biological opinions. The ASIPs will serve as the biological assessment of the CALFED actions or groups of actions; they will provide necessary details about the actions and their impacts on MSCS evaluated species and NCCP communities. USFWS and NMFS will then use the ASIPs to develop action-specific biological opinions.

1.3 COMPLIANCE WITH THE CALIFORNIA ENDANGERED SPECIES ACT AND THE NATURAL COMMUNITY CONSERVATION PLANNING ACT

The NCCPA authorizes the preparation of NCCPs. NCCPs provide the means for regional or areawide protection and perpetuation of natural wildlife diversity, while allowing compatible and appropriate development and growth. Federal, State, and local agencies may undertake natural community conservation planning independently or in cooperation with other persons. NCCPs must be approved by the California Department of Fish and Game (DFG). DFG may authorize incidental take of identified species, including endangered and threatened species, whose conservation and management is provided for in an approved NCCP. Because NCCPA allows DFG to authorize incidental take of endangered and threatened species, an NCCP may be used to comply with CESA.

The MSCS will be submitted to DFG as a proposed programmatic NCCP. Based on the MSCS and other relevant information, DFG will determine whether the MSCS complies with NCCPA. If the MSCS complies with NCCPA, DFG will prepare an NCCP approval and issue supporting findings. As under FESA, when specific CALFED actions or groups of actions have been identified and defined, ASIPs that use information and analyses in the MSCS and the programmatic NCCP approval will provide necessary details about the actions and their impacts on MSCS evaluated species and NCCP communities. The ASIPs can then serve as project-specific NCCPs for CALFED actions or groups of actions.

1.4 CONSERVATION GOALS APPROACH

The MSCS assigns a goal to each MSCS evaluated species. The three alternative goals are recovery ("R"), contribute to recovery ("r"), and maintain ("m"). Chapter 3, "Summary Description of CALFED Elements", describes these goals in more detail.

The goal of "recovery" was assigned to species that meet these criteria:

- the species' recovery depends on restoration of the Delta and Suisun Bay/Marsh ecosystems, and
- CALFED could reasonably be expected to undertake all or most of the actions necessary to recover the species.

The term "recover" means that the decline of a species is arrested or reversed and threats to the species are neutralized, and that the species' long-term survival in nature is therefore assured.

The goal "contribute to recovery" was assigned to species for which CALFED actions affect only a limited portion of the species range and/or have limited effects on the species. This goal means that CALFED will undertake the actions necessary to recover the species that are under its control and within its Problem Area and scope.

The goal "maintain" was assigned to species expected to be affected minimally by CALFED actions. The MSCS requires that CALFED avoid, minimize, and compensate for the adverse effects of its actions on species in this category. The avoidance, minimization, and compensation measures for these species may not contribute to their recovery, but will ensure that CALFED actions will not degrade the species' status or contribute to the need to list the species. In addition, CALFED is expected to take advantage of opportunities to improve conditions for these species where practicable.

Chapter 3 also describes goals for 20 NCCP communities. The goals for the two NCCP fish groups and most of the 18 habitats were developed within the Ecosystem Restoration Program (ERP) and the Strategic Plan for Ecosystem Restoration (CALFED Bay-Delta Program 1999a). Goals for NCCP habitats not addressed by the ERP are predicated on the fisheries and aquatic ecosystems and vegetation and wildlife strategies in the Programmatic EIS/EIR.

1.5 CALFED ELEMENTS

Chapter 3 of this MSCS, "Summary Description of CALFED Elements", provides a general explanation of CALFED. Chapter 4, "Effects of CALFED Actions and Conservation Measures", provides a more complete explanation of relevant CALFED elements to enable a meaningful description of conservation measures and CALFED impacts. For further details about CALFED impacts, please refer to the Programmatic EIS/EIR prepared for CALFED.

The major CALFED elements are the:

- ERP, designed to restore ecological processes associated with streamflow, stream channels, watersheds, and floodplains that are essential to the survival of species dependent on the Delta;

- Water Quality Program, designed to improve the water quality in the Bay-Delta system and to support all beneficial uses of water, including drinking water supply, recreation, agricultural and industrial water supply, and protection and enhancement of aquatic life;

- Water Use Efficiency Program, offering support and incentives for increasing the efficient use of water supplies through planning, technical, and financial assistance;

- Levee System Integrity Program, intended to:
  - increase the stability and structural integrity of project and nonproject Delta levees,
  - provide increased flood protection for Delta islands,
  - reduce island subsidence near levees,
  - improve emergency management resources, and
  - develop recommendations for increasing Delta levee seismic stability;

- Water Transfers Program, designed to develop a policy framework for water transfer rules, baseline data collection, public disclosure, and analyses and monitoring of water transfers in the short and long term;

- Watershed Program, developing coordination, planning, and program prioritization for watershed management; and

- a proposed range of options for storage and conveyance of water, to provide opportunities for enhanced timing and flow management to better satisfy urban, agricultural, and environmental water users.

1.6 Relationship of the Multi-Species Conservation Strategy to the Ecosystem Restoration Program and the Comprehensive Monitoring, Assessment, and Research Program

CALFED's objective for ecosystem restoration is to improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plants and animal species. All CALFED elements will contribute in varying degrees, but the ERP is the principal program element designed to restore the ecological health of the Bay-Delta ecosystem. The ERP includes actions throughout the Bay-Delta watershed and focuses on the restoration of ecological processes and important habitats.

The Comprehensive Monitoring, Assessment, and Research Program (CMARP) is not a separate CALFED element, but is nonetheless a critical part of CALFED. CMARP will be used as a basis for decisions throughout all CALFED elements. Most importantly for the MSCS, it will provide the means to measure progress made toward the ecosystem restoration goals and objectives. It will identify the need to make changes through adaptive management and will provide a focus on research needs to reduce scientific uncertainty.

The ERP and CMARP are integral to the MSCS. As stated above, the MSCS contains two types of conservation measures:

- measures to avoid, minimize, and compensate for adverse effects on NCCP communities and evaluated species caused by individual CALFED actions; and

- measures to enhance NCCP communities and evaluated species that are not linked to the direct adverse effects of individual CALFED actions.

It is primarily through the ERP, as informed by the CMARP, that the second type of measures will be implemented.

The MSCS and the ERP are distinct parts of CALFED, but they are neither severable nor redundant. The ERP is the means by which CALFED will restore the Bay-Delta ecosystem and is the CALFED element most relevant and important for FESA, CESA, and NCCPA compliance. The MSCS conservation measures do not comprise all actions that will be credited toward, or required for, compliance with FESA, CESA, and NCCPA. The MSCS is not a separate or supplemental restoration program and does not supplant the ERP. Rather, the MSCS:

- assesses the aggregate effects of CALFED, including implementation of the entire ERP;

- identifies species goals consistent with the ERP that reflect regulatory standards;

- refines and emphasizes certain ERP actions that are of special importance to the MSCS evaluated species; and

- identifies avoidance, minimization, and compensation measures for evaluated species.

The MSCS's species goals and conservation measures are consistent with and are included in Volumes 1 and 2 of the ERP. ERP actions that are not emphasized or refined in the MSCS may nonetheless be important for FESA, CESA, and NCCPA compliance. USFWS, NMFS, and DFG will consider all proposed CALFED actions that would benefit or harm the MSCS's NCCP communities and evaluated species, including all ERP actions, for purposes of determining whether CALFED complies with FESA, CESA, and NCCPA.

1.7 Relationship of the Multi-Species Conservation Strategy to the Water Management Strategy and Environmental Water Account

The Water Management Strategy (WMS) and the Environmental Water Account (EWA) will help achieve the MSCS's species goals and are integral to the MSCS. Like the CMARP, the WMS and EWA are not separate CALFED elements, but are nonetheless critical parts of CALFED. The WMS evaluates and compares the many tools and approaches for addressing the issue of water supply reliability in the Bay-Delta system. The WMS has three broad purposes:

- develop a menu of water management tools that can be used to attain CALFED's water supply reliability and environmental and fisheries protection goals;

- identify specific water management tools from this menu that will be implemented in Stage 1 of CALFED; and

- provide a long-term decision-making framework for evaluating the success of implementation efforts and for selecting additional tools needed to achieve CALFED's objectives.

The EWA is one of the tools within the WMS. The EWA is based on the concept that flexible management of water can achieve fishery and ecosystem benefits more efficiently than a completely prescriptive regulatory approach.

CALFED can achieve a lower overall cost of environmental protection by managing EWA "assets" (water, storage, money, operation rights, etc.) on a real-time basis than by using a purely prescriptive approach. By managing the EWA in close coordination with other parts of the WMS, CALFED may reap multiple benefits from the use of EWA assets, such as timing water releases for both fisheries enhancement and water quality benefits.

A complete description of the EWA is contained in Section 3.6.6 of the Phase 2 Report. In brief, the EWA will work from a foundation of the existing regulatory regime and will provide for the protection and recovery of fish beyond existing standards and requirements in the 1994 Bay-Delta Accord, the Central Valley Project Improvement Act (CVPIA), the 1995 Delta Water Quality Control Plan, and existing FESA biological opinions. The EWA will be authorized to acquire, bank, transfer, and borrow water and arrange for its conveyance. EWA assets will be managed by the State and federal fishery agencies (USFWS, NMFS, and DFG) in coordination with project operators and stakeholders. Initial acquisition of assets for the EWA will be made and funded by federal and State agencies. It is anticipated that acquisitions and cost allocations among beneficiaries subsequently will be made following a public process that may take advantage of other agencies or third parties to acquire assets.

The EWA will provide fisheries benefits above and beyond existing standards and requirements by using a set of environmental water assets. As described in the Phase 2 Report, the EWA includes three tiers of environmental water "assets". First-tier assets include the existing regulatory baseline and operational flexibility. Second-tier assets include an average of 380,000 acre-feet (af) annually, with borrowing and payback provisions. Third-tier assets include additional water only when necessary, to be provided by the CALFED agencies.

1.8 SCOPE OF THE MULTI-SPECIES CONSERVATION STRATEGY

The scope of the MSCS is defined by two factors:

- the geographic area encompassed by CALFED actions and
- the habitats and species evaluated in the MSCS.

1.8.1 GEOGRAPHIC SCOPE

The geographic scope of CALFED includes two distinct areas, the "Problem Area" and the "Solution Area". The Problem Area is defined as the legal Delta and Suisun Bay and Marsh. The Solution Area is much broader in extent than the Problem Area; it encompasses the Central Valley watershed, the upper Trinity River watershed, the southern California water system service area, San Pablo Bay, San Francisco Bay, portions of the Pacific Ocean out to the Farallon Islands, and a near-shore coastal zone that extends from about Morro Bay to the Oregon border.

CALFED affects a very large geographic area and the range of effects varies greatly. The MSCS addresses four distinct geographic subareas of the CALFED Problem and Solution Areas. These areas are the:

- **MSCS Focus Area.** This area, shown in Figure 1-1, includes the legally defined Delta, Suisun Bay and Marsh, the Sacramento and San Joaquin Rivers and their tributaries downstream of major dams, and the potential locations of reservoirs. This is the same as the focus study area of the ERP shown in Figure 1-2, with the addition of the potential reservoir sites under consideration. The legally defined Delta and Suisun Bay and Marsh (i.e., the CALFED Problem Area) are shown in Figure 1-2.

- **Other Service Areas.** Other State Water Project (SWP) and Central Valley Project (CVP) service areas that are located outside of the MSCS Focus Area and the Watershed Program Area (see below) are shown in Figure 1-2. Potential effects in these service areas cannot be determined until individual CALFED actions or groups of actions are identified and defined.

- **Watershed Program Area.** This area encompasses the watersheds of the CALFED Solution Area, but the program focuses on the watersheds of the San Joaquin and Sacramento Rivers, including those areas located above major dams and outside the Focus Area, and a portion of the upper Trinity River watershed (Figure 1-2). Restoration and management actions implemented through the Watershed Program can yield other CALFED benefits, such as water quality and other streamflow improvements and reductions in reservoir sedimentation. At this time, specific information is not available about possible CALFED Watershed Program actions and their potential effects on MSCS evaluated species.

- **Outer Bay Region.** This area encompasses near-shore coastal areas used by some of the evaluated species (not shown in Figure 1-2). This area is not analyzed in the MSCS because CALFED actions do not extend into that area.

1.8.2 EVALUATED SPECIES AND COVERED SPECIES

CALFED agencies have identified more than 400 species that use the Focus Area. This list was reduced to 244 evaluated species that either could be affected by CALFED actions or are listed under FESA or CESA. The ERP describes targets and programmatic actions for many of the evaluated species. However, for purposes of FESA, CESA, and NCCPA compliance, USFWS, NMFS, and DFG, in consultation with CALFED, developed separate MSCS species goals that reflect applicable regulatory standards. These resource agencies also developed a list of MSCS "conservation measures". Most of the MSCS conservation measures were refinements of ERP programmatic actions that are now incorporated within the ERP. Some additional conservation measures identified by USFWS, NMFS, and DFG were also incorporated within the ERP. Additionally, the MSCS provides some guidance for implementation of the CMARP.

Based on the MSCS, the ERP, and other relevant parts of CALFED (e.g., the CMARP, WMS, and EWA), USFWS, NMFS, and DFG will each identify a list of "covered species". The list of covered species for each agency will differ according to its jurisdiction and applicable statutory standards. Under NCCPA, DFG will identify as a State-covered species any evaluated species that will be "adequately conserved" by the MSCS. Under FESA, USFWS will identify any federally listed or proposed evaluated species (other than anadromous fish species) as a federally covered species if CALFED is not likely to jeopardize the species' continued existence or result in the destruction or adverse modification of habitat critical to the species. Using the same standard, NMFS will identify federally covered species among the federally listed or proposed evaluated species that are anadromous fish species (i.e., steelhead and salmon).

Covered species include species for which take authorization could be issued for actions that follow the MSCS compliance process (see Chapter 6, "Compliance with the Federal and California Endangered Species Acts and Natural Community Conservation Planning Act") and other species for which take cannot be issued. For example, incidental take of extremely rare species will not be authorized. In addition, incidental take will not be authorized where prohibited by certain laws other than FESA or CESA, such as "fully protected" species under State law.

The MSCS assigns goals for species addressed in the ERP that are consistent with the ERP; it also assigns goals for species it evaluates that are outside the scope of the ERP. Chapter 3, "Summary Description of CALFED Elements", describes these goals in more detail. Species goals were assigned according to the following criteria:

- A goal of "recovery" was assigned to those species whose recovery is dependent on restoration of the Delta and Suisun Bay/Marsh ecosystems and for which CALFED could reasonably be expected to undertake all or most of the actions necessary to recover the species. Recovery is achieved when the decline of a species is arrested or reversed, threats to the species are neutralized, and the species' long-term survival in nature is assured.

- The goal "contribute to recovery" was assigned to species for which CALFED actions affect only a limited portion of the species' range and/or CALFED actions have limited effects on the species. To achieve the goal of contributing to a species' recovery, CALFED is expected to undertake some of the actions under its control and within its scope that are necessary to recover the species. When a species has a recovery plan, CALFED may implement both plan measures that are within the CALFED Problem Area and some measures that are outside the Problem Area. For species without a recovery plan, CALFED will need to implement specific measure that will benefit the species.

- The goal "maintain" was assigned to species expected to be minimally affected by CALFED actions. For this category, CALFED will avoid, minimize, and compensate for any adverse effects to the species commensurate with the level of effect on the species. Actions may not actually contribute to the recovery of the species; however, at a minimum, they will be expected to not contribute to the need to list a species or degrade the status of a listed species. CALFED will also, to the extent practicable, improve habitat conditions for these species.

The goals for most of the 20 NCCP communities are derived from the ERP habitat restoration and enhancement strategic goals and targets. Goals for NCCP habitats not addressed by the ERP are predicated on the fisheries and aquatic ecosystems and vegetation and wildlife mitigation strategies in the Programmatic EIS/EIR.

1.9 Relationship of CALFED to Non-CALFED Projects, Programs, and Plans

CALFED and the MSCS will be implemented concurrently with other planning and conservation efforts in the CALFED Solution Area. Existing efforts include:

- regional habitat conservation plans (HCPs) approved or under development,

- conservation agreements,

- numerous biological opinions (programmatic and project specific) addressing diverse actions within the area, and

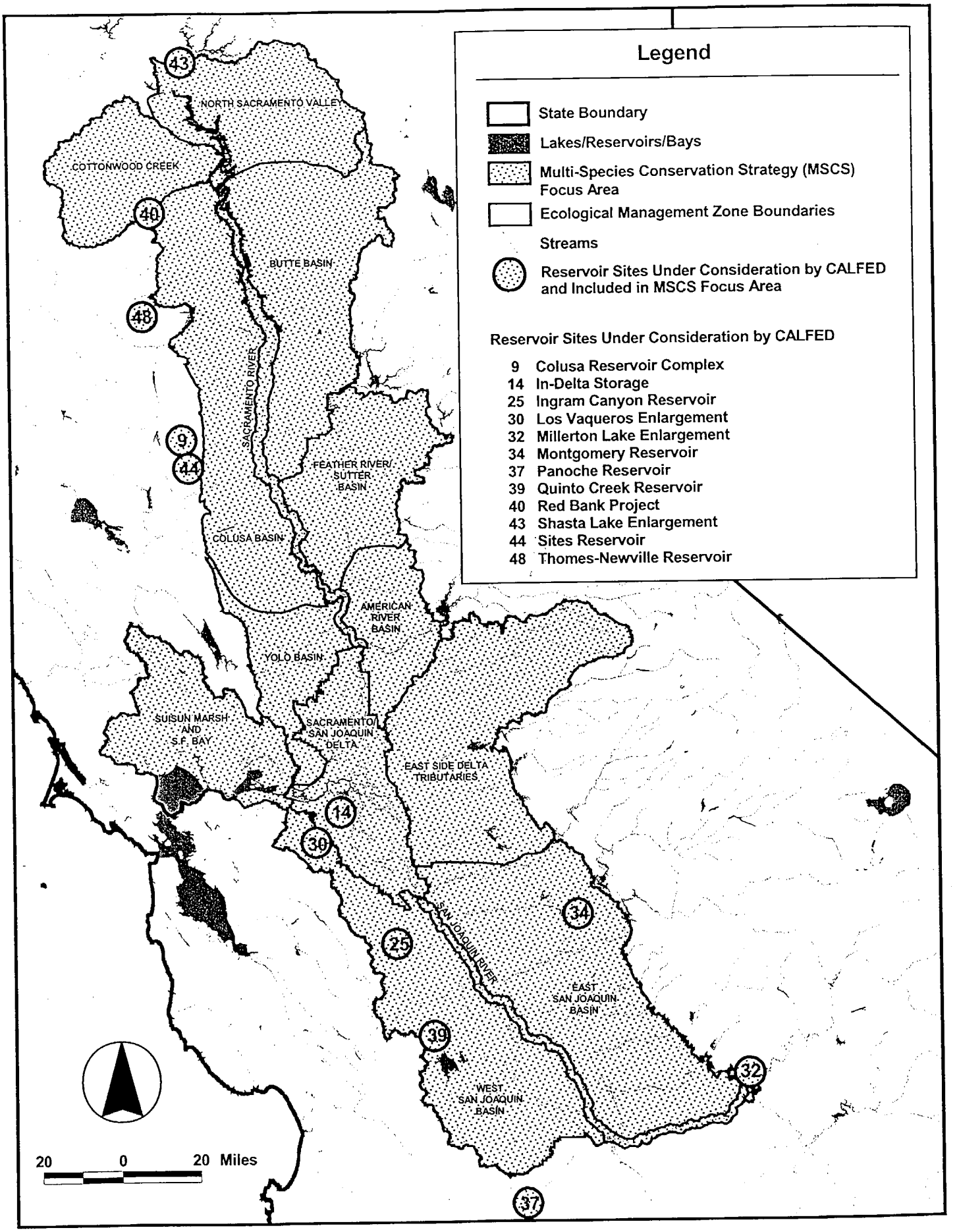
- more than 20 Federal Energy Regulatory Commission (FERC) hydropower relicensing projects.

In addition, the CVPIA provides for a broad range of habitat enhancement and species protection, much of it within the MSCS Focus Area. A further effort has been proceeding under State Senate Bill (SB) 1086 to develop a management plan for the Sacramento River system, some of it already funded through CALFED. CALFED will coordinate its actions with all these existing efforts and will endeavor to enhance their benefits to plants, fish, and wildlife. These efforts and their relationship to CALFED are described in Chapter 5, "Relationship of CALFED to Non-CALFED Projects, Programs, and Plans".

1.10 ADAPTIVE MANAGEMENT, MONITORING, AND REPORTING

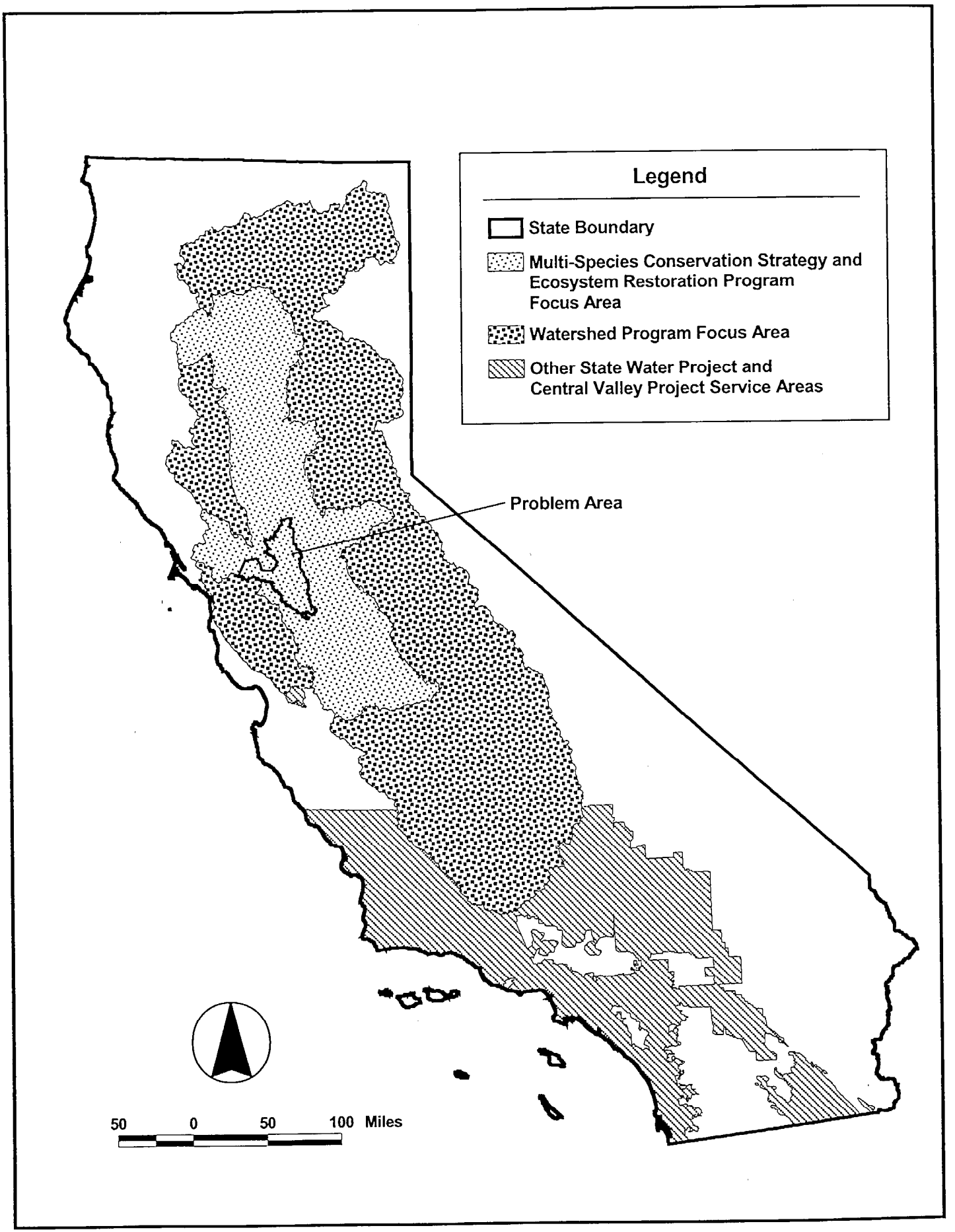
CALFED addresses a broad range of species and habitat types throughout a large area, and encompass numerous large-scale, long-term actions. In preparing the MSCS and ERP, CALFED has used the best available scientific information and collected input from a broad array of experts; however, it is likely that some proposed measures will fail to achieve their objectives. Other measures that achieve some success may, nonetheless, not provide the best solutions to the problems addressed.

In recognition of the uncertainties inherent in any program of this magnitude, CALFED includes provisions for applying an adaptive management process. This process ensures that CALFED and the MSCS can be modified as appropriate to use consistently the best information regarding evaluated species and the most effective practical means for achieving their goals. For CALFED as a whole, the CMARP will help refine CALFED's actions based on monitoring results. The adaptive management components of the MSCS describe how CALFED can periodically evaluate the effectiveness of the conservation measures and modify these measures when necessary. See Chapters 7 and 8, which describe monitoring and adaptive management for the MSCS.



CALFED BAY-DELTA PROGRAM

Figure 1-1
Multi-Species Conservation Strategy Focus Area



CALFED BAY-DELTA PROGRAM

Figure 1-2
CALFED Program Areas